

Name _____

Look-out Below!

Problem: How does the mass of a falling object affect its speed and acceleration?

Hypothesis: (to be completed as a group prior to beginning lab)

Materials:

Triple-beam balance

Stopwatch (traditional or cell phone/iPod)

5 objects of varying masses

Calculator

Measuring Tape to find drop distance

Procedure:

1. Collect all required materials to complete the lab.
2. Zero the triple-beam balance and find the mass of each object (round to the nearest 10th of a gram) and record on the data table
3. Move to designated stairwell dropping location with your group
4. Assign a job to each group member – examples: dropper, timer (1 or 2), runner, and recorder
5. Drop object #1 vertically down the stairwell from the indicated drop level
6. Start the stopwatch when the object is released from the dropper's hand and stop it when it hits the floor below; If you have 2 timers, compare measurements for accuracy.
7. Record time (to nearest hundredth of a second) for Drop 1
8. Repeat with same object for Drop 2-4 and record time
9. Repeat steps 5-8 for each additional object
10. Calculate all data starting with the speed of each drop using the formula $S=D/T$
11. Calculate the average times and speeds for each object
12. Calculate the acceleration using only the average speed and time

Operational Definition: (complete as a group; ID anything measured in the experiment)

Data: a series of data tables will be provided to you to be completed as you conduct the lab.

(SAMPLE DATA TABLE... DO NOT COPY)

Object _____

Mass _____ Drop Height _____

	Time (seconds)	Speed (m/s)	Acceleration (m/s/s)
Drop 1			X
Drop 2			X
Drop 3			X
Drop 4			X
Average			

Graph: Once all measurements are collected and averages are calculated, you will be generating bar graphs to represent data averages. Remember the independent variable is on the X-axis and the dependent variable is on the Y-axis. Don't forget to add a title, labels, a key, different colors, and.... USE A RULER!

Conclusion:

To be completed a via MyAccess after lab is finished